Space Weather Forecast

Issued on Wednesday, 19 October 2022 at 13:14 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: No significant activity.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low over the past 24 hours, with a few low level C-class flares mostly originating from a small sunspot region which is now approaching the southwest limb of the visible disc. A further small developing region has emerged in the southeast disc but remains simple. There are two further small regions on the disc. No Earth directed Coronal Mass Ejections (CMEs) were visible on available satellite imagery.

Solar Wind / Geomagnetic Activity: The solar wind continued to ease, as Earth transitions into a slow wind environment. Speeds fell 530 km/s to a slightly elevated level of 450 km/s. The total magnetic field strength remained weak, with the north-south component unremarkable. Geomagnetic activity was Quiet (Kp 1-2) throughout the period

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is likely to be Low or Very Low, with only a very slight chance of Moderate-flares.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs. Current slightly elevated solar winds are expected to continue easing day 1 and 2 (19th and 20th). A slight enhancement is possible day 3 (21st) due to Earth encountering the left-over fast winds from a coronal hole that has now closed. A further enhancement is then possible later day 4 (22nd) due to the arrival of the fast winds from a more distinct coronal hole, although the time of this is low confidence. Geomagnetic activity is expected to be mainly Quiet days 1 and 2 (19th-20th). There is a chance of Active intervals day 3 (23rd). There is chance of activity increasing to Unsettled to Active with slight chance of G1/Minor Storm intervals by the end of day 4 (22nd).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to persist at background with no solar radiation storms occurring.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	5	20
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	5	5	5	5
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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